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The relationship between dispositional pessimistic attributional style versus trauma-specific attributions and PTSD symptoms

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Abstract

Because a relatively small percentage of individuals who experience a traumatic event ultimately develop posttraumatic stress disorder (PTSD), it is incumbent upon researchers to identify factors of vulnerability and risk. One possible risk factor is attributional style or the types of causes individuals habitually offer for negative life events. This study examined the association between pessimistic attributional style and symptoms of PTSD. Because of methodological problems with the traditional questionnaire measurement of dispositional attributional style, this investigation added a structured content analysis of participants' trauma narratives to examine associations between trauma-specific attributions and PTSD symptoms. Dispositional attributional style, measured by the attributional style questionnaire (ASQ), was significantly associated with PTSD symptoms, but trauma-specific attributions more strongly predicted symptoms.

Keywords: Pessimistic attributions; PTSD; Trauma; Narrative; CAVE; ASQ

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1. Introduction

A major difficulty in constructing an etiological model of posttraumatic stress disorder (PTSD) is the fact that some individuals who experience a traumatic event develop debilitating symptoms while others do not. Furthermore, of those who experience intense stress reactions, some recover fairly quickly while others develop a chronic disorder.

The National Comorbidity Study (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), based on a representative national sample of 5877 individuals, estimated that approximately 61% of men and 51% of women have experienced at least one traumatic event, establishing that traumatic exposure is quite prevalent. However, not all individuals who experience a traumatic event subsequently develop PTSD. Estimates of lifetime PTSD in the population range from 1 to 14% (APA, 1994), with most estimates in the 7–8% range (cf. Kessler et al., 1995). Breslau et al. (1998) estimated probabilities of developing PTSD in response to various traumas by first obtaining an exhaustive trauma history from participants, randomly selecting one trauma offered by each individual, and assessing symptoms pertaining to that traumatic experience. This method, coupled with the impressive sample size (2181), likely provides the most accurate conditional probabilities of developing PTSD for specific types of trauma. The conditional probability of developing PTSD in response to any traumatic experience (i.e., the overall prevalence of PTSD given some traumatic experience) was 9.2%.

Because a relatively small percentage of individuals exposed to traumatic events subsequently develop PTSD, determining differences between trauma-exposed individuals who develop symptoms from similarly trauma-exposed individuals who do not develop symptoms may help to identify sources of vulnerability and factors associated with resiliency when faced with a traumatic event. Potentially fruitful sources of differences between disordered and nondisordered individuals with a trauma history are personality and cognitive variables.

Causal attributions for a traumatic event, as well as one's dispositional attributional style, have recently been implicated in development of PTSD symptoms following a trauma. According to attribution theorists, people have a need to explain unexpected, unwanted, or otherwise unusual events that happen to them, and the explanations that they offer for such events may influence the severity of symptoms following a trauma (Joseph, Yule, & Williams, 1993). Pessimistic attributional style, the pervasive tendency to explain negative events in terms of internal, global, and stable causes, is significantly correlated with clinical depression (Peterson & Seligman, 1984). Internal attributions for a negative event place blame on the individual as opposed to recognizing external factors which may have caused or contributed to the event. Stable attributions are those that are likely to be enduring or persistent, such as attributing a recent test failure to low intelligence as opposed to inadequate preparation. Finally, global attributions generalize an event to many facets of an individual's life as opposed to

one specific aspect. Thus, if an individual attributed a test failure to an inability to comprehend chemistry, it would be a relatively specific attribution; attributing a test failure to general academic ineptitude would be much more global.

Joseph et al. (1993) suggested that a pessimistic attributional style might be similarly related to PTSD. That is, individuals who offer internal, global, and stable causes for their traumas may be more likely to develop symptoms of PTSD. Individuals who blame themselves for a traumatic event, and who believe the world to be an inherently dangerous place (stable and global), may experience more psychopathology than if they believed the trauma was an isolated, rare event, such as "being in the wrong place at the wrong time." Conceptually, it makes sense that certain symptoms of PTSD, such as avoidance and hypervigilance, would be more likely if one believes danger to be lurking around every corner versus believing that traumatic events are rare or are unlikely to occur again in the future.

Two ways to examine the association between pessimistic attributional style and PTSD responses to trauma are to (1) study the types of causal attributions that trauma victims make for negative events in general (i.e., measure dispositional attributional style), and (2) study the attributions made in reference to specific traumas. Only a few recent studies have employed the first strategy. Mikulincer and Solomon examined the relationship between dispositional attributional style and symptoms of posttraumatic stress among combat veterans in three separate studies (Mikulincer & Solomon, 1988, 1989; Solomon, Mikulincer, & Waysman, 1991). In all three of their studies, veterans were asked to recall both a success and a failure that they had experienced within the past 3 months and to rate the influence of attributional factors on the occurrence of the event. Scores on attributional dimensions were then correlated with symptoms of PTSD. In all three studies, veterans with greater posttraumatic stress attributed recent negative events in their lives to causes that were more stable and less controllable relative to veterans with less posttraumatic stress.

Other researchers have found similar associations between dispositional attributional style and PTSD symptoms. For instance, McCormick, Taber, and Kruedelbach (1989) found that combat veterans suffering from PTSD with comorbid addictions (alcohol and gambling) offered more internal, global and stable causes for hypothetical negative events as compared to veterans with addictions who were not suffering from PTSD. Another recent investigation of a noncombat population, child sexual abuse survivors, also demonstrated that internal, stable, and global causes for hypothetical negative events were associated with more severe PTSD symptoms (Wenninger & Ehlers, 1998). These two studies used the attributional style questionnaire (ASQ; Peterson, Semmel, Abramson, Metalsky, & Seligman, 1982) to determine dispositional attributional style. The ASQ presents six hypothetical negative events (e.g., "You go out on a date and it goes badly.") and six hypothetical positive events (e.g., "You get a raise."). Respondents offer one major cause for each event and then rate the degree to which these causes are internal, global, and stable on a 7-point Likert-type scale.

The extent to which attributions for hypothetical negative events are related to attributions for actual life events is unclear. Some researchers have found moderate convergence between the ASQ and attributions offered for actual life events (e.g., Peterson, Bettes, & Seligman, 1985), others have found ASQ-derived attributional style scores to be poor predictors of attributions offered for actual life events (e.g., Cutrona, Russell, & Jones, 1985), and Miller, Klee, and Norman (1982) found no significant association between attributions made for hypothetical events and those offered for actual, stressful life events. In summary, attributions that an individual offers for hypothetical events sometimes bear little or no relationship to the causes they offer for actual traumatic life events.

Circumventing this predictive validity problem with dispositional attributional style, other studies have used the second strategy listed above and assessed causal explanations offered by participants for their specific traumas. One recent investigation of crime victims examined the relationship between PTSD symptoms and causal explanations offered by participants for their victimizations (Falsetti & Resick, 1995). In this study, internal, stable, and uncontrollable attributions for actual traumatic events (i.e., the victimizations) significantly predicted PTSD severity scores.

Several other studies have also found trauma-specific attributions to be significantly related to measures of other types of subsequent psychopathology. Studies of rape and sexual assault victims have consistently demonstrated significant relationships between attributions that victims offer for their assaults and levels of emotional disturbance. Frazier (1990) found that rape victims who blamed themselves (internal attributions) and who cited causal factors that were stable and global were significantly more depressed 3 days after the assault than individuals offering other types of causal explanations. Attributional factors accounted for 67% of the variance in postrape depression. Several other studies of victims of rape and sexual assault, while not systematically examining the three major dimensions of causal attributions, have replicated the finding that self-blame for victimization is associated with greater levels of depression and PTSD symptoms (Arata & Burkhart, 1996; Coffey, Leitenberg, Henning, Turner, & Bennett, 1996; Feinhauer & Stuart, 1996).

A limitation in this research area, with the notable exception of the Falsetti and Resick (1995) study, is that the relationship between PTSD and trauma attributions other than the internal–external dimension has gone unexplored. The global nature and stability of attributions for traumatic events may also be associated with subsequent symptomatology and may have important implications for etiological conceptualizations of PTSD. Moreover, the few investigations that have examined trauma-specific attributions in relation to PTSD symptoms, including Falsetti and Resick (1995), have relied solely on participant ratings of their own attributions, which may limit the conclusions of these studies.

It is questionable whether attribution study participants, who are not trained in attributional theory or ratings, can accurately rate their attributions along the

relevant dimensions. Ratings of attributions for both actual and hypothetical negative events are perceptions of the extent to which these attributions are internal, global or stable, and these perceptions may well be faulty in the absence of exemplars of highly internal, global or stable attributions. Evidence for self-rated attribution inaccuracy was found in a study that compared ratings of trained judges and naïve participants (Schulman, Castellon, & Seligman, 1989). Participants completed the ASQ according to standard instructions (i.e., offering causal explanations for hypothetical events and then rating the cause for each event along the three attributional dimensions). The causes that participants offered were typed separately, randomized, and given to raters blind to participants' symptom status. On the composite negative attribution scale, the most commonly used index of pessimistic attributional style, only 23% of the variance in trained judges' attribution ratings was shared by participants' ratings, very modest convergence for ratings of the same stimuli. In addition to having little conceptual understanding for discriminating and scaling attributions in their ratings, naïve participants may also have maladaptive cognitive sets that could bias ratings and further limit conclusions about the relationship between post-trauma pathology and attributions.

The present investigation was designed to assess the generalizability of the relationship between attributions and symptoms of PTSD by using a sample of participants who were exposed to a wide range of traumas. It was also designed to determine whether attributions that participants generate for actual traumatic experiences are more strongly associated with PTSD symptoms than are dispositional attributions based on hypothetical negative events. In addition, to avoid possible symptom effects on participant-rated attributions, trained judges who were blind to symptom status rated participants' attributions for their traumas.

In addition to completing the ASQ, participants wrote narrative accounts of their most traumatic events and cited possible causes. Trauma-specific attributions were then assessed using the Content Analysis of Verbatim Explanations technique (CAVE; Schulman et al., 1989) which involves extracting causal attributions from event narratives and rating those attributions using trained judges blind to both the event and symptom status of participants. With its structured, systematic methods, its assessment of attributions for actual traumatic experiences as opposed to hypothetical negative events, and its ratings obtained from trained judges instead of participants, the CAVE technique reduces many of the biases associated with other content analytic approaches, and it yields high interjudge reliability coefficients for all three attributional dimensions (Zullow, Oettinger, Peterson, & Seligman, 1988).

A composite negative attribution scale can be computed for both the CAVE and the ASQ by aggregating across all three dimensions, and a hopelessness scale can be derived by aggregating across the stable–unstable and global–specific dimensions. We hypothesized that, consistent with past research, internal, global and stable attributions offered for hypothetical negative events on the ASQ would be associated with greater PTSD symptom severity. Additionally, we hypothesized

that attributions for actual traumatic events would be more strongly associated with PTSD symptoms relative to attributions for hypothetical events.

2. Method

2.1. Participants

Participants in this investigation were undergraduate psychology students at a state university. They received credit toward their psychology courses in exchange for participation. The study was conducted in two phases. All students were eligible for the first phase, which was a screening procedure used to identify appropriate participants for the second (experimental) phase. Participants were recruited via posters in the psychology department. All participants provided Institutional Review Board-approved informed consent in both phases.

2.2. Measures

During the screening phase of the investigation, participants completed a trauma history questionnaire. Those who were eligible and who returned for the second phase were asked to complete a depression inventory, an inventory of posttraumatic stress symptoms, and a questionnaire assessing attributional style. Additionally, in the second phase, participants were asked to write about their most traumatic experience.

2.2.1. Trauma exposure

During the initial screening, participants' traumatic experience histories were obtained with the trauma assessment for adults—self-report version (TAA; Resnick, Best, Kilpatrick, Freedy, & Falsetti, 1993). This instrument inquires about a number of traumas known to elicit symptoms of PTSD, such as combat experience, natural disaster, motor vehicle accidents, sexual assault, being threatened or attacked with a weapon, and other potentially life-threatening experiences. The TAA also asks respondents to indicate, for each endorsed traumatic experience, if they believed that they would be seriously injured or killed during the trauma.

2.2.2. Posttraumatic stress

Severity of posttraumatic stress symptoms experienced by participants in the second phase was assessed by the modified PTSD symptom scale—self-report version (MPSS-SR;Resick, Falsetti, Resnick, & Kilpatrick, 1991). This self-report inventory instructs participants to rate the frequency and severity of each of the 17 primary symptoms of PTSD listed in the DSM-IV. A total symptom score can be computed by aggregating across frequency and intensity ratings for each of the 17 symptoms. This instrument has demonstrated good internal consistency,

test–retest reliability, and has been found to correlate highly with concurrent structured clinical interview measures of PTSD symptomatology (Coffey, Dansky, Falsetti, Saladin, & Brady, 1998; Falsetti, Resnick, Resick, & Kilpatrick, 1993; Lombardo et al., 2000).

2.2.3. Depression

Depressive symptoms were assessed in the second phase with the Beck depression inventory—second edition (BDI-II; Beck, 1996). This paper-and-pencil inventory requires respondents to endorse one of four statements corresponding to increasing severity levels of each of 21 symptoms of depression. This is the most widely used depression inventory, as it requires minimal time to complete (approximately 5 min) and has been found to be reliable and valid (Beck, 1996).

2.2.4. Attributional style

Participants in the second phase of the investigation also completed the ASQ (Peterson et al., 1982). This inventory is designed to identify the nature of respondents' causal explanations for hypothetical positive and negative events by having them rate their explanations along three dimensions: internal–external, global–specific; and stable–unstable. This widely used questionnaire has demonstrated adequate reliability (Peterson et al., 1982) and validity (Burns & Seligman, 1989).

2.3. Procedure

The investigation was conducted in two phases. The initial, screening phase was conducted in groups in a large classroom. Once informed consent forms were signed, each participant received a basic demographic information form (age, gender, race) and the TAA.

Screening forms were filled out with no identifying information except for a code number that corresponded to additional measures administered in phase two. The last page of the screening packet informed participants that they might qualify for an additional investigation related to the present one, but that participation in the second study was voluntary and failure to participate would not adversely affect them in any way. The bottom portion of this sheet included a detachable form on which they could write their name and phone number if they were interested in the future study. These detachable forms included the subjects' corresponding screening packet code numbers.

Of the 190 individuals who participated in the first phase, 98 reported experiencing at least one qualifying traumatic event. Of those identifying at least one DSM-IV PTSD Criterion A traumatic experience, 72 participants (73% of participants who experienced a traumatic event, and who were therefore eligible for the second phase) completed the second phase of the study. About 74% of these participants were Caucasian, 19% were African-American, and the

remaining 7% of the sample was comprised of individuals reporting other ethnicities. About 57% of participants were female, and the mean age of participants was 20.1 years (S.D. = 2.7).

The second phase was conducted with participants individually. All participants were seated in a room by themselves and completed the ASQ, MPSS-SR, and the BDI-II. Following the completion of these measures, the experimenter returned and gave participants directions for the writing assignment. To assess trauma-specific attributions, participants were asked to write about their most traumatic experience (i.e., the event referenced while completing the MPSS-SR). They were given the following instructions:

> Please write about an event that resulted in significant personal trauma. This should be an event in which you were seriously injured; OR you believed that you would be seriously injured or killed; OR a close friend or relative was killed; OR you were sexually assaulted or raped. Specifically, write about what caused the event, how it made you feel, and what it caused you to think about. Additionally, specify whether you believe similar events are likely to happen in the future. What factors might influence the likelihood of similar events occurring in the future? Take your time and don't be concerned with spelling or grammar. Remember, all information will remain confidential, so please be as candid and honest as possible.

At the end of the writing session, the investigator returned, participants were debriefed with the purpose of the study explained in greater detail. In addition, participants were urged to seek services from a list of mental health care providers given to them if they were experiencing any chronic emotional difficulties related to the traumatic event.

When all data and trauma narratives were collected, attributions were extracted and rated according to the method outlined by Schulman et al. (1989). Two independent judges, who were blind to participants' symptom status, rated the attributions offered by participants for their traumatic experiences along the internal–external, stable–unstable, and global–specific dimensions. Cronbach's alpha coefficient was .73 for the composite negative scale (i.e., the aggregate of all three attribution dimension ratings), which is consistent with reliability estimates of the CAVE found in other studies (Kamen-Siegel, Rodin, Seligman, & Dwyer, 1991; Schulman et al., 1989).

3. Results

Consistent with one of the primary goals of the investigation, a wide range of traumatic events was endorsed by participants. Of the 72 second phase participants, 23 cited a life-threatening motor vehicle accident as their most traumatic experience; 16 experienced the sudden, unexpected death of a close friend or relative; 13 individuals witnessed a gruesome accident or injury; 9 participants

Table 1
Zero-order and partial correlations between ASQ scales and PTSD symptom scales

ASQ scale	Zero-order			Partial		
	Frequency	Severity	Total	Frequency	Severity	Total
Internal	.24*	.32**	.29**	−.08	.09	.02
Stable	.45**	.40**	.43**	.37**	.26*	.33**
Global	.30**	.35**	.34**	−.08	.03	−.01
Hopelessness	.41**	.41**	.42**	.13	.15	.14
Composite negative	.43**	.47**	.46**	.04	.13	.10

Partial correlations have effects of BDI-II depression scores removed. Hopelessness is the aggregate of stable and global attributions; composite negative is the aggregate of internal, stable, and global attributions; $N = 72$.
* $P < .05$.
** $P < .01$.

experienced other life-threatening injuries or accidents (i.e., accidents other than motor vehicle accidents); 8 individuals were victims of rape or sexual assault; and 3 people survived a natural disaster. The sample reported a wide range of total symptom scores on the MPSS-SR ($M = 26.83$, S.D. $= 25.86$), with 13% of the trauma-exposed sample (7% of the total, phase 1 sample) meeting PTSD diagnostic criteria. These percentages are consistent with incidence rates given in the DSM-IV and in other investigations (APA, 1994; Breslau et al., 1998).

3.1. Simple and partial correlations

Zero-order Pearson's *r* correlation coefficients showed that both dispositional attributional style (Table 1) and trauma-specific attributions (Table 2) were consistently and strongly associated with PTSD symptoms. However, it was important to assess whether attributional style and trauma-specific attributions

Table 2
Zero-order and partial correlations between CAVE scales and PTSD symptom scales

CAVE scale	Zero-order			Partial		
	Frequency	Severity	Total	Frequency	Severity	Total
Internal	.36**	.38**	.38**	.22*	.26*	.26*
Stable	.33**	.28**	.30**	.10	.01	.04
Global	.59**	.60**	.61**	.21*	.23*	.25*
Hopelessness	.61**	.58**	.60**	.25*	.19	.23*
Composite negative	.65**	.64**	.65**	.28*	.26*	.28*

Partial correlations have effects of BDI-II depression scores removed. Hopelessness is the aggregate of stable and global attributions; composite negative is the aggregate of internal, stable, and global attributions; $N = 72$.
* $P < .05$.
** $P < .01$.

were significantly associated with PTSD symptoms above and beyond their shared association with depression because of the known relationship between depression and both attributional style and PTSD. Accordingly, partial correlations between attribution measures and MPSS-SR measures were computed, by removing the variance in MPSS-SR and attribution scores accounted for by depression (see Tables 1 and 2). Only the relationship between the stable–unstable scale of the ASQ and MPSS-SR scales remained statistically significant after controlling for the confounding effects of depression. In contrast, most of the correlations between the trauma-specific attributions and MPSS-SR scales remained statistically significant after controlling for depression. Moreover, these partial correlations, most of which were in the range $r = .25$–$.35$, represent medium effect sizes (Cohen, 1988). Although these partial correlations were not large, the fact that they remained statistically significant and were still in the medium effect size range after partialling out a substantial amount of variability due to depression reflects the relatively robust nature of the associations between attributions and PTSD symptoms.

3.2. Multiple regression analyses

Standard multiple regression analyses were conducted to assess the relative utility of attributional style scales and trauma-specific attributions as predictors of PTSD symptomatology. The first multiple regression analysis used MPSS-SR total scores as the dependent variable and ASQ scales as predictor variables (Table 3). The second multiple regression analysis also used MPSS-SR total scores as the dependent variable, but used trauma-specific attributions with their CAVE scores as the predictor variables (Table 4). Preliminary analyses revealed no violations of the assumptions of normality, linearity, or homoscedasticity of

Table 3
Standard multiple regression of dispositional attributional style variables (ASQ) on PTSD symptoms

Variables	MPSS (DV)	Internal	Stable	Global	*B*	*β*	*T*	*P*
Internal	.29				6.06	.20	1.90	.06
Stable	.43	.10			10.99	.34	2.68	.01**
Global	.34	.16	.51		1.83	.08	.64	.52
Intercept	−51.85							
Means	26.96	4.43	4.06	4.05				
S.D.	26.00	.87	.82	1.19				
R^2	.23							
Adjusted R^2	.20							
R	.49***							

Variables not in the equation: composite negative and hopelessness.
** $P < .01$.
*** $P < .001$.

Table 4
Standard multiple regression of trauma-specific attribution variables (CAVE) on PTSD symptoms

Variables	MPSS (DV)	External	Stable	Hopeless	*B*	*β*	*T*	*P*
External	.39				3.05	.25	2.45	.02*
Stable	.31	−.08			−2.95	−.16	−1.13	.26
Hopelessness	.60	.19	.73		6.66	.67	4.56	.01**
Intercept	−15.82							
Means	27.69	2.87	3.75	.88				
S.D.	26.76	2.16	1.50	2.70				
R^2	.45							
Adjusted R^2	.42							
R	.67***							

Variables not in the equation: global and composite negative.
* $P < .05$.
** $P < .01$.
*** $P < .001$.

residuals. While both regression analyses yielded statistically significant solutions, the solution utilizing trauma-specific attributions as predictors accounted for 45% of the variance in MPSS-SR symptom scores. Both hopeless (i.e., stable plus global) and internal attributions for traumas significantly predicted PTSD symptoms. In contrast, the regression employing the dispositional attributional style scales from the ASQ as predictors accounted for only 23% of the variance in MPSS-SR total symptom scores. In this regression analysis, only the ASQ stable–unstable scale contributed significantly to the prediction of MPSS-SR scores, although the internal–external scale approached statistical significance ($P = .06$).

4. Discussion

These results support the small but growing number of studies that show that pessimistic attributional style is related to PTSD symptoms. Although many of the associations between the dispositional attributional style measures of the ASQ and PTSD symptom scales did not remain statistically significant after controlling for depression, stable attributions for negative events did remain significant. Thus, present results indicate that individuals who habitually offer stable or enduring factors, such as abilities or personality traits, as causes for negative events are more likely to experience more severe symptoms of PTSD following traumatic exposure.

Most interesting were the stronger and more uniform effects found for CAVE-generated trauma attributions as compared to ASQ-derived dispositional attributional style scores. These results suggest that individuals who blame themselves for their trauma (i.e., give internal attributions), and who generate possible causes for the traumas that are enduring (i.e., offer stable attributions) and that apply to

many aspects of their lives (i.e., offer global attributions) may be more prone to developing symptoms of PTSD. It is certainly conceivable that the types of attributions and inferences that people generate about a traumatic experience may exacerbate symptoms of PTSD. Another explanation for the stronger association found for the CAVE than the ASQ attributions is that individuals may depart from their habitual attributional style when attempting to account for very unexpected events such as traumas. Alternatively, weaker associations between the ASQ and PTSD symptoms may be owing to biased or inaccurate attribution ratings provided by participants. We are currently conducting a follow-up investigation designed to further evaluate these possibilities.

Anecdotally, inspection of attribution ratings on the ASQ provided by participants in this investigation were often consistent with the supposition that participants could improve rating accuracy if they were given exemplars of attributions that anchored extremes on the various dimensions. To cite one of many anecdotal examples, when asked to generate one major cause for the hypothetical situation of being unable to find a job, one participant attributed this scenario to a poor economy and job market. Although this is a fairly clear example of an external attribution according to criteria set forth by Schulman et al. (1989), the individual rated this attribution as being neutral on the internal–external scale (i.e., a rating of ''4'' on the 7-point scale). Interestingly, this individual was not highly symptomatic. Clearly, further research is needed to determine whether the stronger associations between trauma-specific attributions and PTSD in this investigation are owing to more accurate and objective attribution ratings, or whether they are owing to fundamental differences in causes that people generate for traumatic events as opposed to unpleasant, nontraumatic events. Regardless, trauma-specific attributions may prove to be an important factor in the conceptualization, assessment, and treatment of PTSD.

In general, studies conducted to date have generally supported the hypothesis that internal, global and stable attributions for negative events in general, and traumatic events specifically, are associated with greater symptoms of depression and PTSD. To our knowledge, because this investigation used trained judges who were blind to participants' level of pathology, it is the first to ensure that attributional ratings were objective and unbiased by awareness of symptom status. Given that previous research has documented only modest convergence between the ratings of naïve participants and trained judges when evaluating the same stimuli (e.g., Schulman et al., 1989), use of trained judges in the present investigation arguably provides more accurate data bearing on the attribution–pathology relationship relative to studies relying solely on participant ratings of their own attributions.

One limitation that the present investigation shares with other research efforts in this area is its reliance on cross-sectional, correlational methods. It cannot, of course, be asserted on the basis of this investigation or other studies reviewed that the types of explanations offered by trauma victims play a causal role in the development of PTSD symptoms. It may well be the case that the types of

attributions that a person makes are caused by trauma exposure or by symptoms of PTSD. Longitudinal research is needed to determine the effect, if any, of traumatic exposure on attributional style.

Mikulincer & Solomon (1989) offer one possible explanation for the manner in which attributions may affect PTSD symptoms, however. They note that attribution of unpleasant events to uncontrollable and stable causes is associated with less frequent use of problem-focused, as opposed to emotion-focused, coping. Problem-focused coping involves individuals' direct attempts to solve the problems creating stress or to reduce stress. Such individuals may be more likely to seek counseling or to alter behaviors associated with a traumatic event. By contrast, emotion-focused coping often involves, ''wishful thinking, rationalization, or distancing'' (Mikulincer & Solomon, 1989, p. 271). Whether the tendency to offer internal, global, and stable causes for unpleasant events precedes or results from traumatic exposure, it does seem clear that this attributional pattern consistently differentiates trauma victims with high symptom levels from those with low symptom levels.

Despite advantages afforded by using trained judges to extract and rate attributions offered by participants in their trauma narratives, one limitation of the present investigation is its reliance on self-report measures to assess symptoms of PTSD. Although the MPSS-SR demonstrates good convergent validity with structured interviews, future efforts would benefit from multiple assessment methods that included structured interviews. Finally, another limitation of the present investigation may be its exclusive use of college students. However, we believe that investigation of vulnerability factors in the traditional college student age range is likely to be quite fruitful, as this age range is associated with a very high incidence of exposure to traumatic events (Breslau et al., 1998). Moreover, in the investigation of vulnerability and risk factors associated with a particular disorder, it important to examine such relationships among nontreatment-seeking populations (Keane, 1989).

In summary, attributions for a traumatic event that are more internal, global, and stable are associated with higher levels of pathology. Attributional style may be adversely affected by the development of PTSD. Alternatively, maladaptive attributions may be sources of vulnerability that make PTSD more likely in the event of traumatic exposure. Future longitudinal and experimental research efforts are needed in order to elucidate the nature of these relationships.

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